

RARE PLANT SURVEYS OF NORTHWEST ANGLE PROVINCIAL FOREST, MANITOBA



Manitoba Conservation Data Centre MS Report 02-01

February 2002

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Abstract

Staff of the Manitoba Conservation Data Centre conducted surveys for rare species in Northwest Angle Provincial Forest between May 31 and September 19, 2001. A surveying approach that focused on revisiting the same sites throughout the growing season was employed. Five plots with unique floral assemblages were surveyed; occurrences of rare species were encountered in three of them. Additional rare plant occurrences were encountered through informal surveys of the region. Given the objectives of this study, the efficacy of the methodology employed is questionable; recommendations as to future rare plant surveys in extreme southeastern Manitoba are provided.

Acknowledgements

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Introduction and Methods

Extreme southeastern Manitoba represents the western edge of the Lake of the Woods ecoregion, an area more closely identified with the warmer, more humid southeastern Canadian mixed forest region, than with the colder, drier boreal regions to the north (Environment Canada 2000). A number of provincially rare plant species, largely affiliated with eastern Canadian forests, are known from this region. Cataloguing the location of rare species occurrences and describing abundance, habitat, and possible threats are critical to the sound stewardship of Manitoba's biodiversity resource. Informed decisions relating to land use, protection, species status, and the direction of future research depend on the availability of this basic data. Knowledge of the diversity and distribution of rare species in extreme southeastern Manitoba remains incomplete.

Staff of the Manitoba Conservation Data Centre (CDC) conducted surveys for rare species in Northwest Angle Provincial Forest (NAPF) between May 31 and September 19, 2001. A surveying approach that focused on revisiting sampling sites throughout the growing season was employed. This methodology allows a thorough measure of plant diversity to be made at each site and takes into account plant phenological differences.

A reconnaissance of the area was conducted on May 31 to gauge the diversity of floral assemblages in the area and identify sites appropriate for the establishment of sampling plots. Five plots were established on June 6 and 7, within distinctly different floral assemblages (Figure 1). To aid in sampling, a 10 x 10 m plot was delineated. All tree and shrub species were recorded within this plot. To aid in the sampling of understory diversity, four 1 x 1 m plots were established at each corner of the 10 x 10 m plot. Having established a within-plot species list, the area surrounding the plot was cruised and additional species encountered were noted. Vegetation structure, dominance of trees and/or shrubs, and major landscape features were noted at each site. Site coordinates were recorded with a GPS unit, and photographs were collected. Sites were resampled on July 12, August 16, and September 19, and species not previously recorded were noted. Site descriptions are presented below, accompanied by a list of all vascular plant species enumerated. Rare species, as defined by the Manitoba CDC, are noted.

Surveying of the five established plots was supplemented by informal surveys, conducted as time allowed. Rare species noted in these additional surveys are presented separately from the results of the plot revisits.

Species for which positive field identification could not be made were collected for later identification. Specimens of suspected rare species were also collected when populations were large enough that collection would not compromise long-term survival. Nomenclature of surveyed species follows Kartesz (1999). Species conservation ranks follow NatureServe (2001). All photographs are copyright of the Manitoba CDC.

All pertinent information collected has been incorporated into a rare species database maintained by the CDC. The information contained therein is available to parties involved in relevant land management and research, upon request.

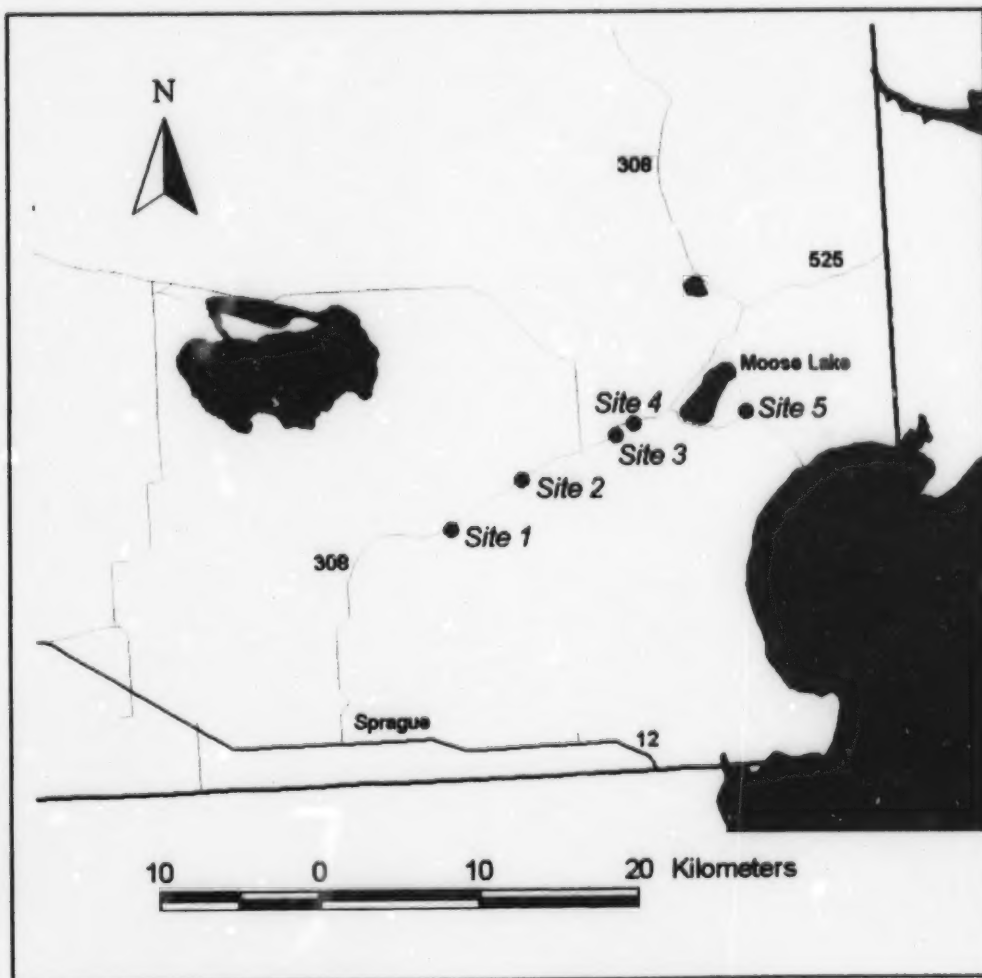


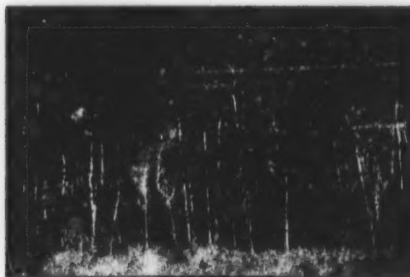
Figure 1. Location of sampling sites in southeastern Manitoba.

Results

Site 1

Site Description

This stand is characterised by a nearly continuous canopy of trembling aspen (*Populus tremuloides*), in admixture with a small amount of white birch (*Betula papyrifera*). One dead canopy jack pine (*Pinus banksiana*) was observed. Bebb's willow (*Salix bebbiana*) and hazelnut (*Corylus* sp.) dominate a well-developed shrub canopy 1-2 m in height. Wild sarsaparilla (*Aralia nudicaulis*), northern bush-honeysuckle (*Diervilla lonicera*) and wild lily-of-the-valley (*Maianthemum canadense*) dominate the understory. White spruce (*Picea glauca*) seedlings and saplings are occasionally encountered.



Site 1 is located adjacent to Provincial Road (P.R.) 308, near the southern boundary of NAPF (UTM 15 U 0314726E 5446355N). Stands of similar species composition are common along the beach ridge upon which the southern portion of the highway is constructed. No rare species were encountered at this site.

Species List

Trees

<i>Abies balsamea</i>	Balsam fir
<i>Betula papyrifera</i>	Paper birch
<i>Populus balsamifera</i>	Balsam poplar
<i>Populus tremuloides</i>	Trembling aspen

Shrubs

<i>Amalanchier alnifolia</i>	Saskatoon service-berry
<i>Cornus sericea</i>	Red-osier dogwood
<i>Corylus</i> sp.	Hazelnut
<i>Diervilla lonicera</i>	Northern bush-honeysuckle
<i>Prunus pensylvanica</i>	Pin cherry, Fire cherry
<i>Prunus virginiana</i>	Choke cherry
<i>Rhamnus alnifolia</i>	Alderleaf buckthorn
<i>Rosa acicularis</i>	Prickly rose
<i>Rubus idaeus</i>	Red raspberry
<i>Salix bebbiana</i>	Bebb's willow
<i>Vaccinium angustifolium</i>	Late lowbush blueberry
<i>Viburnum opulus</i>	Highbush cranberry
<i>Viburnum rafinesquianum</i>	Downy arrow-wood

Forbs

<i>Anemone quinquefolia</i>	Wood anemone
<i>Apocynum androsaemifolium</i>	Spreading dogbane
<i>Aquilegia canadensis</i>	Wild columbine
<i>Aralia nudicaulis</i>	Wild sarsaparilla
<i>Aster ciliolatus</i>	Lindley's aster
<i>Aster lanceolatus</i>	Panicled aster
<i>Clintonia borealis</i>	Bluebead lily, Clinton lily
<i>Coeloglossum viride</i>	Long-bract green orchis
<i>Cornus canadensis</i>	Canadian bunchberry, Dwarf dogwood
<i>Epilobium angustifolium</i>	Fireweed
<i>Fragaria virginiana</i>	Virginia strawberry
<i>Galium boreale</i>	Northern bedstraw
<i>Lathyrus ochroleucus</i>	Cream vetchling
<i>Linnaea borealis</i>	Twinflower
<i>Maianthemum canadense</i>	Wild lily-of-the-valley
<i>Maianthemum stellatum</i>	False Solomon's-seal
<i>Melampyrum lineare</i>	American cow-wheat
<i>Orthilia secunda</i>	One-side wintergreen
<i>Pyrola asarifolia</i>	Pink wintergreen
<i>Rubus pubescens</i>	Dewberry, Dwarf red raspberry
<i>Sanicula marilandica</i>	Black snake-root
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago hispida</i> var. <i>hispida</i>	Hairy goldenrod
<i>Trientalis borealis</i>	Northern starflower
<i>Vicia americana</i>	American purple vetch

Graminoids

<i>Bromus ciliatus</i>	Fringed brome
<i>Calamagrostis canadensis</i>	Blue-joint reedgrass
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Elymus canadensis</i>	Nodding wild-rye
<i>Oryzopsis asperifolia</i>	White-grained mountain-rice grass
<i>Schizachne purpurascens</i>	Purple oat, False melic

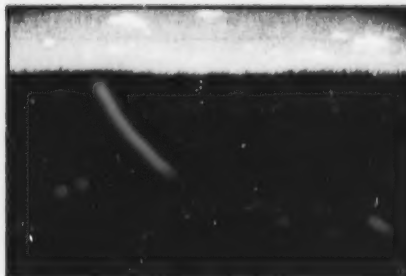
Ferns and Fern Allies

<i>Equisetum arvense</i>	Field horsetail
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Site 2

Site Description

This site straddles the south shoreline of a small lake and an adjacent floating heath mat. The terrestrial portion is characterised by an open basket willow (*Salix petiolaris*) shrubland that appears to have been recently inundated (dominated by herbaceous annuals) but was dry in 2001. The floating mat is dominated by leatherleaf (*Chamaedaphne calyculata*), often in admixture with narrow-leaved meadowsweet (*Spiraea alba*), supported on a *Sphagnum* spp. mat.



Site 2 is located 5.5 km north of Site 1, along P.R. 308 (UTM 15 U 0319424E 5449105N). Non-treed and black spruce-dominated peatlands dominate much of NAPF. No rare species were encountered at this site.

Species List

Shrubs

<i>Chamaedaphne calyculata</i>	Leatherleaf
<i>Salix petiolaris</i>	Basket willow
<i>Spiraea alba</i>	Narrow-leaved meadowsweet

Forbs

<i>Aster puniceus</i>	Swamp aster
<i>Cicuta maculata</i>	Spotted water hemlock
<i>Cirsium arvense</i>	Creeping thistle, Canada thistle
<i>Comarum palustre</i>	Marsh cinquefoil
<i>Euthamia graminifolium</i>	Flat-top fragrant goldentop
<i>Hypericum majus</i>	Larger Canadian St. John's-Wort
<i>Iris versicolor</i>	Blueflag
<i>Lycopus asper</i>	Rough bugleweed
<i>Lysimachia thyrsiflora</i>	Water loosestrife
<i>Mentha arvensis</i>	Wild mint
<i>Mimulus ringens</i>	Square-stem monkeyflower
<i>Polygonum convolvulus</i>	Black bindweed
<i>Potentilla norvegica</i>	Norwegian cinquefoil
<i>Scirpus cyperinus</i>	Cottongrass bulrush
<i>Sium suave</i>	Hemlock water parsnip
<i>Stachys palustris</i>	Marsh hedge-nettle
<i>Typha</i> sp.	Cattail
<i>Urtica dioica</i>	Stinging nettle

Utricularia macrorhiza
Viola macloskeyi

Greater bladderwort
Smooth white violet

Graminoids

Agrostis scabra
Calamagrostis canadensis
Carex aquatilis
Carex canescens
Carex lasiocarpa var. *americana*
Carex pellita
Phalaris arundinacea
Phragmites australis

Rough bentgrass
Blue-joint reedgrass
Water sedge
Hoary sedge
Slender sedge
Wooly sedge
Reed canary grass
Common reed

Ferns

Dryopteris cristata

Crested shield-fern

Site 3

Site Description

The canopy of this stand is dominated by large trembling aspen individuals (circumference at breast-height (CBH) of largest individual = 238 cm), with an admixture of black ash (*Fraxinus nigra*) in low-lying areas. A well-developed subcanopy of black ash occurs throughout the stand. Shrubs are uncommon, but black ash and trembling aspen seedlings and saplings are frequent; occasionally American elm (*Ulmus americana*) seedlings are encountered. The rich, moist, black soil of this stand supports a very diverse herbaceous assemblage; no one species dominates throughout the site. The water table is very close to the surface (within 15 cm) in most of the stand; in low-lying areas water moved at the surface continuously from May to August.



This site occurs adjacent to P.R. 308 in a slight depression, approximately 500 m wide, that drains toward the southeast (UTM 15 U 0325498E 5451424N). Stands in which black ash forms a significant portion of the tree canopy are uncommon in NAPF, and in the province. Four rare species were encountered at this site: *Fraxinus nigra*, S3, N?, G5; *Osmorhiza claytonii*, S2, N?, G5; *Ranunculus hispidus* var. *caricetorum*, SR, N?, G5T5; and *Carex gracillima*, S3, N?, G5.

Species List

Trees

<i>Betula papyrifera</i>	Paper birch
<i>Fraxinus nigra</i>	Black ash
<i>Populus balsamifera</i>	Balsam poplar
<i>Populus tremuloides</i>	Trembling aspen
<i>Ulmus americana</i>	American elm

Shrubs

<i>Alnus viridis</i> ssp. <i>crispa</i>	Green alder
<i>Cornus sericea</i>	Red-osier dogwood
<i>Lonicera dioica</i>	Mountain honeysuckle
<i>Prunus virginiana</i>	Choke cherry
<i>Rhamnus alnifolia</i>	Alderleaf buckthorn
<i>Ribes americanum</i>	Wild black currant
<i>Ribes hudsonianum</i>	Northern black currant
<i>Rosa acicularis</i>	Prickly rose
<i>Rubus idaeus</i>	Red raspberry
<i>Symphoricarpos occidentalis</i>	Western snowberry

Forbs

<i>Actaea rubra</i>	Red baneberry
<i>Anemone quinquefolia</i>	Wood anemone
<i>Aquilegia canadensis</i>	Wild columbine
<i>Aralia nudicaulis</i>	Wild sarsaparilla
<i>Aster ciliolatus</i>	Lindley's aster
<i>Aster lanceolatus</i>	Panicle aster
<i>Aster umbellatus</i> var. <i>pubens</i>	Flat-top white aster
<i>Caltha palustris</i>	Marsh marigold
<i>Cardamine pensylvanica</i>	Pennsylvania bitter-cress
<i>Circaea alpina</i>	Small enchanter's nightshade
<i>Cirsium muticum</i>	Swamp thistle
<i>Coeloglossum viride</i>	Long-bract green orchis
<i>Cornus canadensis</i>	Canadian bunchberry, Dwarf dogwood
<i>Cypripedium parviflorum</i>	Lesser yellow lady's-slipper
<i>Erigeron asper</i>	Rough fleabane
<i>Fragaria virginiana</i>	Virginia strawberry
<i>Galium triflorum</i>	Sweet-scent bedstraw
<i>Geum rivale</i>	Purple avens
<i>Impatiens capensis</i>	Spotted jewel-weed
<i>Lathyrus ochroleucus</i>	Cream vetchling
<i>Maianthemum canadense</i>	Wild lily-of-the-valley
<i>Maianthemum stellatum</i>	False Solomon's-seal
<i>Mentha arvensis</i>	Wild mint
<i>Mitella nuda</i>	Naked bishop's-cap
<i>Osmorhiza claytonii</i>	Hairy sweet cicely
<i>Petasites frigidus</i> var. <i>palmatus</i>	Arctic sweet coltsfoot
<i>Petasites sagittatus</i>	Arrowleaf sweet coltsfoot
<i>Prenanthes alba</i>	White rattlesnake-root
<i>Ranunculus abortivus</i>	Kidney-leaved buttercup
<i>Ranunculus hispidus</i> var. <i>caricetorum</i>	Hispid buttercup
<i>Rubus pubescens</i>	Dewberry, Dwarf red raspberry
<i>Sanicula marilandica</i>	Black snake-root
<i>Senecio congestus</i>	Marsh ragwort
<i>Solidago canadensis</i>	Canada goldenrod
<i>Stachys palustris</i>	Marsh hedge-nettle
<i>Stellaria borealis</i>	Northern stitchwort
<i>Streptopus roseus</i>	Rosy twisted-stalk
<i>Taraxacum officinale</i>	Common dandelion
<i>Thalictrum dasycarpum</i>	Purple meadowrue
<i>Trientalis borealis</i>	Northern starflower
<i>Trillium cernuum</i>	Nodding trillium
<i>Typha</i> sp.	Cattail
<i>Urtica dioica</i>	Stinging nettle

Vicia americana

American purple vetch

Graminoids

Carex deweyana

Short-scale sedge

Carex disperma

Softleaf sedge

Carex gracillima

Graceful sedge

Carex intumescens

Bladder sedge

Carex peckii

White-tinged sedge

Carex pedunculata

Longstalk sedge

Cinna latifolia

Slender wood reedgrass

Oryzopsis asperifolia

White-grained mountain-rice grass

Ferns and Fern Allies

Athyrium felix-femina

Sub-arctic lady fern

Equisetum arvense

Field horsetail

Matteuccia struthiopteris

Ostrich fern

Site 4

Site Description

The uppermost tree canopy in this stand is dominated by trembling aspen and balsam poplar (*Populus balsamifera*), in admixture with balsam fir (*Abies balsamea*). Northern white cedar (*Thuja occidentalis*) exists in a well-developed subcanopy, covering approximately 60% of the stand. Few shrubs or herbs grow in the typically dark understory that is dominated by cedar litter fall. Surface water flowed through portions of the stand in May and June.



This stand was located adjacent to P.R. 308, 1.4 km north of Site 3 (UTM 15 U 0326662E 5452071N). Stands containing cedar were infrequently encountered in NAPF, usually occurring on the middle to lower slopes of ridges. One rare species, *Asarum canadense*, S3?, N5, G5, was encountered at this site.

Species List

Trees

<i>Abies balsamea</i>	Balsam fir
<i>Betula papyrifera</i>	Paper birch
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Picea glauca</i>	White spruce
<i>Populus balsamifera</i>	Balsam poplar
<i>Thuja occidentalis</i>	Northern white cedar
<i>Ulmus americana</i>	American elm

Shrubs

<i>Acer spicatum</i>	Mountain maple
<i>Alnus incana ssp. rugosa</i>	Speckled alder
<i>Cornus sericea</i>	Red-osier dogwood
<i>Corylus sp.</i>	Hazelnut
<i>Prunus virginiana</i>	Choke cherry
<i>Rhamnus alnifolia</i>	Alderleaf buckthorn
<i>Ribes hudsonianum</i>	Northern black currant
<i>Rosa acicularis</i>	Prickly rose
<i>Viburnum rafinesquianum</i>	Downy arrow-wood

Forbs

<i>Actaea rubra</i>	Red baneberry
<i>Anemone quinquefolia</i>	Wood anemone
<i>Aralia nudicaulis</i>	Wild sarsaparilla
<i>Asarum canadense</i>	Canada wild-ginger
<i>Aster ciliolatus</i>	Lindley's aster
<i>Aster lanceolatus</i>	Panicked aster
<i>Cardamine pensylvanica</i>	Pennsylvania bitter-cress
<i>Circaea alpina</i>	Small enchanter's nightshade
<i>Cirsium muticum</i>	Swamp thistle
<i>Clintonia borealis</i>	Bluebead lily, Clinton lily
<i>Erigeron asper</i>	Rough fleabane
<i>Galium triflorum</i>	Sweet-scent bedstraw
<i>Halenia deflexa</i>	Spurred gentian
<i>Linnaea borealis</i>	Twinflower
<i>Maianthemum canadense</i>	Wild lily-of-the-valley
<i>Mertensia paniculata</i>	Tall bluebells, Tall lungwort
<i>Mitella nuda</i>	Naked bishop's-cap
<i>Moneses uniflora</i>	One-flower wintergreen
<i>Petasites frigidus</i> var. <i>palmaris</i>	Arctic sweet coltsfoot
<i>Petasites sagittatus</i>	Arrowleaf sweet coltsfoot
<i>Plantago major</i>	Great plantain
<i>Platanthera obtusata</i>	Small northern bog-orchid
<i>Prenanthes alba</i>	White rattlesnake-root
<i>Pyrola asarifolia</i>	Pink wintergreen
<i>Rubus pubescens</i>	Dewberry, Dwarf red raspberry
<i>Sanicula marilandica</i>	Black snake-root
<i>Streptopus roseus</i>	Rosy twisted-stalk
<i>Taraxacum officinale</i>	Common dandelion
<i>Toxicodendron rydbergii</i>	Western poison ivy
<i>Trientalis borealis</i>	Northern starflower
<i>Trillium cernuum</i>	Nodding trillium
<i>Viola labradorica</i>	Labrador violet

Graminoids*

<i>Carex eburnea</i>	Ebony sedge
<i>Schizachne purpurascens</i>	Purple oat, False melic
<i>Botrychium virginianum</i>	Rattlesnake fern

Ferns and Fern Allies

<i>Equisetum pratense</i>	Meadow horsetail
<i>Equisetum scirpoides</i>	Dwarf scouring rush

Site 5

Site Description

The tree component of this stand is complex in structure and composition. Trembling aspen forms an overstory that covers approximately 30% of the stand, with many individual stems dead or dying (largest living individual CBH = 147 cm). Dead jack pine that once occupied this canopy are occasionally interspersed. White birch exists in a well-developed subcanopy below the aspen, with balsam fir occasional in admixture. The canopy is punctuated occasionally by large eastern white pine (*Pinus strobus*) that rise 10 m or more above the tallest aspen. A discontinuous shrub canopy exists; hazelnut and/or red-osier dogwood (*Cornus sericea*) occasionally form dense patches. The herbaceous understory is well-developed at this site; bluebead lily (*Clintonia borealis*) is commonly encountered.



This stand is located north of the Buffalo Bay access road, 3 km east of Moose Lake (UTM 15 U 0333827E 5452188N). Mixed coniferous-deciduous stands containing eastern white pine are common on uplands in the Moose Lake area, but were not often observed elsewhere in NAPF. The Manitoba distribution of eastern white pine is limited to the extreme southeastern corner of Manitoba. Two rare species were encountered at this site: *Carex gracillima*, S3, N?, G5; and *Pinus strobus*, S2, N5, G5.

Species List

Trees

<i>Abies balsamea</i>	Balsam fir
<i>Acer negundo</i>	Manitoba maple
<i>Betula papyrifera</i>	Paper birch
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Pinus banksiana</i>	Jack pine
<i>Pinus strobus</i>	Eastern white pine

Shrubs

<i>Cornus sericea</i>	Red-osier dogwood
<i>Corylus sp.</i>	Hazelnut
<i>Diervilla lonicera</i>	Northern bush-honeysuckle
<i>Lonicera dioica</i>	Mountain honeysuckle
<i>Ribes oxycanthoides</i>	Canada gooseberry
<i>Rosa acicularis</i>	Prickly rose
<i>Rubus idaeus</i>	Red raspberry
<i>Vaccinium angustifolium</i>	Late lowbush blueberry
<i>Viburnum lentago</i>	Nanny-berry

Forbs

<i>Actaea rubra</i>	Red baneberry
<i>Anemone quinquefolia</i>	Wood anemone
<i>Apocynum androsaemifolium</i>	Spreading dogbane
<i>Aralia nudicaulis</i>	Wild sarsaparilla
<i>Aster ciliolatus</i>	Lindley's aster
<i>Aster umbellatus</i> var. <i>pubens</i>	Flat-top white aster
<i>Berteroa incana</i>	Hoary false-alyssum
<i>Clintonia borealis</i>	Bluebead lily, Clinton lily
<i>Coptis trifolia</i>	Goldthread
<i>Cornus canadensis</i>	Canadian bunchberry, Dwarf dogwood
<i>Eupatorium maculatum</i>	Spotted Joe-Pye weed
<i>Fragaria virginiana</i>	Virginia strawberry
<i>Galium triflorum</i>	Sweet-scent bedstraw
<i>Lathyrus ochroleucus</i>	Cream vetchling
<i>Maianthemum canadense</i>	Wild lily-of-the-valley
<i>Mitella nuda</i>	Naked bishop's-cap
<i>Petasites frigidus</i> var. <i>palmatus</i>	Arctic sweet coltsfoot
<i>Pyrola asarifolia</i>	Pink wintergreen
<i>Rubus pubescens</i>	Dewberry, Dwarf red raspberry
<i>Streptopus roseus</i>	Rosy twisted-stalk
<i>Trientalis borealis</i>	Northern starflower
<i>Trillium cernuum</i>	Nodding trillium

Graminoids

<i>Carex assiniboinensis</i>	Assiniboine sedge
<i>Carex brunnescens</i>	Brownish sedge
<i>Carex deweyana</i>	Short-scale sedge
<i>Carex gracillima</i>	Graceful sedge
<i>Carex intumescens</i>	Bladder sedge
<i>Carex utriculata</i>	Northwest Territory sedge
<i>Cinna latifolia</i>	Slender wood reedgrass
<i>Luzula multiflora</i>	Common woodrush
<i>Oryzopsis asperifolia</i>	White-grained mountain-rice grass

Ferns and Fern Allies

<i>Equisetum hyemale</i>	Rough horsetail
<i>Equisetum scirpoides</i>	Dwarf scouring rush
<i>Equisetum sylvaticum</i>	Woodland horsetail
<i>Lycopodium dendroideum</i>	Tree-like clubmoss

Other Surveys

While the focus of rare plant surveys in NAPF was the surveying of the same 5 stands through the growing season, one-time surveys of other areas in the southeast were also conducted as time allowed. These surveys resulted in the discovery of a new record for *Arisaema triphyllum* (jack-in-the-pulpit, S2, N?, G5) in a *Salix*-dominated wetland on the shore of Buffalo Bay. In addition, one *Pinus strobus* (eastern white pine, S2, N5, G5) stand, not previously captured in the CDC database, was surveyed in the Moose Lake area.

Native Orchid Conservation Inc. (NOCI) also conducted surveys for rare species in NAPF in 2001. Four rare species, *Platanthera hookeri* (Hooker's orchis, S2, N?, G5), *Cypripedium arietinum* (ram's-head lady's-slipper, S2?, N3, G5), *Asarum canadense* (Canada wild-ginger, S3?, N5, G5), and *Chelone glabra* (turtlehead, S2S3, N?, G5) were encountered in peat bogs (Ames 2001).

Conclusions

Sampling sites repeatedly through the growing season allows for a more complete assessment of biodiversity and site conditions than that allowed by one-time surveys. Where study objectives are focused on determining the presence of rare species and their distribution on the landscape, however, the value of this method is questionable. The intensive sampling required focuses, by necessity, on a limited number of sites. This precludes the exploration of a large portion of the landscape and the surveying, albeit less intensively, of a greater variety of landscapes and communities. In an area for which little information on rare species distribution and abundance exists, the latter method may be more appropriate for a first approximation of rare species diversity and distribution.

Two of the three repeatedly-surveyed sites that contained rare understory species also contained rare canopy tree species. Future rare species surveys should focus efforts on stands containing black ash or eastern white pine; the local conditions permitting the establishment and growth of these species may also encourage the presence of other provincially rare species with eastern Canadian affinities. Both species are readily identifiable at a distance and, with more difficulty, from aerial photographs.

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Appendix

Conservation Data Centre Ranks

Adapted from the Manitoba CDC website, 1998

Species are evaluated and ranked by the Conservation Data Centre on the basis of their range-wide (global - G) status, nation-wide (national - N) status, and province-wide (subnational - S) status according to a standardized procedure used by all Conservation Data Centres and Natural Heritage Programs. These ranks are used to determine protection and data collection priorities, and are revised as new information becomes available.

For each level of distribution—global, national, and provincial—species are assigned a numeric rank ranging from 1 (very rare) to 5 (demonstrably secure). This reflects the species' relative endangerment and is based primarily on the number of occurrences of that species globally, nationally, or within the province. However, other information, such as date of collection, degree of habitat threat, geographic distribution patterns and population size and trends, is considered when assigning a rank. The number of occurrences listed below are suggestions, not absolute criteria. For example, the Green Frog (*Rana clamitans*) is ranked G5, S2. That is, globally the species is abundant and secure, while in Manitoba it is rare and may be vulnerable to extirpation.

Rank	Definition
1	Very rare throughout its range or in the province (5 or fewer occurrences, or very few remaining individuals). May be especially vulnerable to extirpation.
2	Rare throughout its range or in the province (6 to 20 occurrences). May be vulnerable to extirpation.
3	Uncommon throughout its range or in the province (21 to 100 occurrences).
4	Widespread, abundant, and apparently secure throughout its range or in the province, with many occurrences, but the element is of long-term concern (> 100 occurrences).
5	Demonstrably widespread, abundant, and secure throughout its range or in the province, and essentially irradicable under present conditions.
U	Possibly in peril, but status uncertain; more information needed.
H	Historically known; may be rediscovered.
X	Believed to be extinct; historical records only, continue search.

Other Heritage Codes

Code	Definition
G#G# N#N# S#S#	Numeric range rank: A range between two of the numeric ranks. Denotes range of uncertainty about the exact rarity of the species.

Subrank

Code	Definition
T	Rank for subspecific taxon (subspecies, variety, or population); appended to the global rank for the full species, e.g. G4T3.

Qualifiers

Code	Definition
A	Accidental in the province; including species (usually birds or butterflies) recorded very infrequently, hundreds or thousands of kilometers outside their usual range.
B	Breeding status of a migratory species. Example: S1B,SZN - breeding occurrences for the species are ranked S1 (critically imperilled) in the province, nonbreeding occurrences are not ranked in the province.
E	An exotic established in the province; may be native in nearby regions.
HYB	Element represents a hybrid of species.
N	Non-breeding status of a migratory species. Example: S1B,SZN - breeding occurrences for the species are ranked S1 (critically imperilled) in the province, nonbreeding occurrences are not ranked in the province.
P	Indicates the element may potentially occur in the province.
Q	Taxonomic questions or problems involved, more information needed; appended to the global rank.
R	Reported in the province, but lacking documentation which would provide a basis for either accepting or rejecting the report.
T	Rank for subspecific taxon (subspecies, variety, or population); appended to the global rank for the full species.
Z	Ranking not applicable.
#	A modifier to SX or SH; the species has been reintroduced but the population is not yet established.
?	Inexact or uncertain; for numeric ranks, denotes inexactness.



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**RARE SPECIES FIELD
REPORTING FORM**

INSTRUCTIONS - PLEASE READ CAREFULLY:

- 1: Important: this form is to be **COMPLETED BY THE PERSON WHO MADE THE OBSERVATION** and is for reporting **FIRST-HAND ON-SITE FIELD OBSERVATIONS**; do **NOT** use this form to report second or third hand data from a letter, report, or conversation. Send us a copy of the letter, report, memo, etc. and we will process it in another manner.
2. Complete one form per species per site. Use a pen or dark pencil.
3. Very Important: attach a copy of the NTS topographic map indicating the location/boundary of the species. (see p.2).

SPECIES (scientific) NAME: _____

COMMON NAME: _____

OBSERVATION DATA: LAST observed: month: _____ day: _____ yr.: _____

FIRST observed: month: _____ day: _____ yr.: _____

Name of observer(s): _____

Telephone: () _____ - _____

Address: _____

Fax: () _____ - _____

_____ Prov: _____ Postal Code: _____ Others knowledgeable about
this occurrence (name, address, phone): _____

LOCATION INFORMATION: ELEVATION (if known): _____ ft. / m (circle one)

SURVEY SITE NAME (local or place name for site) : _____

TOPOGRAPHIC MAP NAME: _____ **TOPOGRAPHIC MAP NUMBER** _____

MUNICIPALITY/LGD(S): _____

TOWNSHIP(S) : _____

DIRECTIONS TO THE OCCURRENCE : Describe in detail the **PRECISE LOCATION** of the species occurrence. Refer to nearby topographic landmarks and street names. Include distances and mileage whenever possible. Be clear and concise.

BIOLOGY : Total number of animals (adults, juveniles, nests, etc.) or plants (flowering, fruits, stems, etc.) observed: _____

Photograph taken? Y N Specimen taken? Y N Collection #/ repository: _____

Identification problems? Y N Explain: _____ Quality of

this occurrence: Excellent Good Fair Poor Explain: _____

SURVEY SITE INFORMATION:

Habitat/site description: (plant communities / dominants / associated species / other rare species / substrates / soils / aspect / slope) :

Overall quality of the site: **Excellent** **Good** **Fair** **Poor** Explain : _____

MANAGEMENT and PROTECTION:

Landowner(s) or manager(s) if known. Include name / address / phone: _____

Current Land Use: _____

Visible disturbance and possible threats : _____

Conservation / management needs : _____

Data security needed? **Y** **N** Explain : _____

***TOPOGRAPHIC MAP: (VERY IMPORTANT) - ATTACH** (staple) a **PHOTOCOPY** of the appropriate portion of the **TOPOGRAPHIC MAP** for area and indicate the precise location of each species occurrence. See the directions below :

1. If the size of the occurrence is very small, simply draw a **DOT** on the map indicating the location of the occurrence.
2. If the occurrence is large enough, draw a boundary (using a solid line) around the known extent of the occurrence.

HABITAT MAP: Draw a detailed **SKETCH** of the habitat showing fine details not shown on the topographic map. Indicate the **ROUTE** taken, **STREETS, LANDMARKS, DISTURBANCE, SCALE,** and **NORTH.** Use an additional sheet of paper if necessary.

IMPORTANT - PLEASE FILL OUT THE FOLLOWING:

FORM FILLED OUT BY: Date: _____ Name: _____

Affiliation : _____

Address : _____ Prov. _____ Postal Code _____

SUBMITTED BY: (if different from above) : _____